

Innovation Cluster FOR ENTREPRENEURSHIP EDUCATION



Innovation & Research
Entrepreneurship Education

**A Summary of the key findings from the ICEE
research project on the impact of entrepreneurship education**



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**Erasmus+ Programme
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INTRODUCTION

The Innovation Cluster for Entrepreneurship Education (ICEE) is a policy experimentation project started in January 2015 that ran until January 2018.

The project was assigned by the European Commission through the Erasmus+ Programme.

The Eastern Norway Research Institute (ENRI) was leading the research.

The lead partner in the consortium, with responsibility for the implementation, was Junior Achievement Europe ([JA Europe](#)).

In addition, 13 organisations took part:

- 5 Ministries of Education in Estonia, Finland, Italy and Latvia plus Flanders Innovation and Entrepreneurship (Enterprise Flanders, Ministry of Economy, Belgium);
- 3 research institutes (Eastern Norway Research Institute, The Foundation for Entrepreneurship -Young Enterprise Denmark, Faculty of Economics in Osijek, J.J. Strossmayer University);
- 5 national JA organisations (in Belgium, Finland, Italy, Estonia, and Latvia).

MAIN OBJECTIVE

The main objective of the project was to analyse the impact of entrepreneurship education and understand what is needed to reach the European goal, which is that every young person should have a practical entrepreneurial experience before leaving school. The research tested what the scenario looks like at 50% penetration among students between 15 and 20 years old and carry out a 27-month field trial using the JA Company Programme in twenty schools (academic as well as vocational) across the five countries.

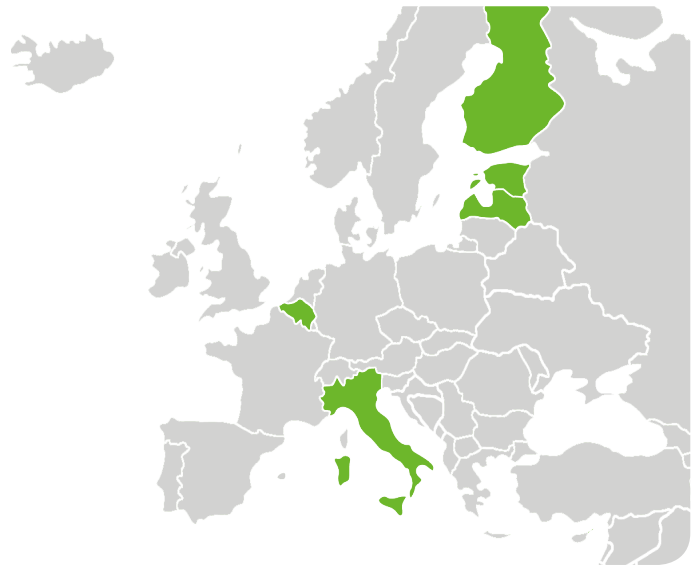
THE JA COMPANY PROGRAMME

The test bed for the field trials was the JA Europe Company Programme (CP). This mini-company programme is a practical entrepreneurial experience based on a learner-driven method. Students work in teams and under the guidance of teachers and business volunteers.

Students work in teams and under the guidance of teachers and business volunteers.

Students participating in the programme develop their ability to generate ideas and turn them into action; they learn how to work in a team, take initiative and accept responsibility; they experience what it means to manage a real enterprise; they understand how economics and finance contribute to a project's success and they apply math, science, language, writing, technological or specialised skills in a practical way.

Students close down the mini-company at the end of the school year. During the year, they can participate in competitions and trade fairs where they demonstrate what they have learned and achieved.



"Implementing entrepreneurship education and making it a daily practice in schools takes time but it pays back. Everything starts with the teachers and, behind them, with the headmaster of the school. The suggestion for new schools moving into this field is to start small and then grow by having entrepreneurial teachers training the others, by recognising good practices and by working on the motivation of school stakeholders. Political decisions are important to open doors and increase awareness but then each school has to find its DNA and recipe for success".

TES Award teacher

DEMOGRAPHICS

20 upper secondary schools in Belgium, Estonia, Finland, Italy and Latvia participated in a 27-month field trial using mini-companies as the practical entrepreneurial experience.

These schools were compared with the situation in five control schools. The research in ICEE was based on a combination of qualitative and quantitative methods.

- Survey data was gathered pre/post with 12000 respondents (students, teachers, parents, and business people). A total of 150 people were interviewed individually or in groups.
- The mean age among the students was 17 years with 50/50 boys and girls.
- The average age among teachers was 47 years, and 72% of them were women.
- Parents in the study had the average age of 47, and 70% were women.

35% of the students were in vocational schools, 20% in technical programme/other programmes, and 45% in an academic programme. 10% of the students were immigrants. 17% of the students had CP as an elective course, 83% as mandatory.



GENDER/AGE



MEAN AGE OF STUDENTS: 17

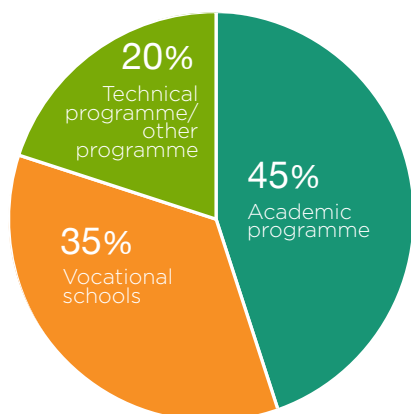
SCHOOLS INVOLVED



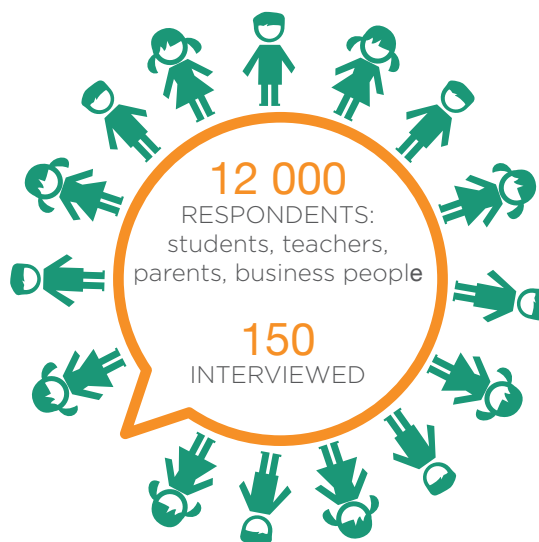
20 UPPER SECONDARY SCHOOLS USING MINI-COMPANIES

+5 CONTROL SCHOOLS

STUDENTS PROFILE



RESPONDENTS/INTERVIEWED



INNOVATION CLUSTERS

In addition to the research, all the ICEE partners worked together in four “cluster areas” to identify good practices in Europe. Through the four innovation clusters, the consortium analysed national strategies, and also came up with suggestions on how entrepreneurship education experiences can flow from primary to upper secondary in a ‘progression model’. They also reviewed the content/tools/methods which can be used, and approaches to teacher training and assessment tools. All these reports can be found on the project site www.icee-eu.eu.

The partners and the schools had several meetings and workshops during the project.

We also invited head teachers and teachers from winners of The Entrepreneurial School Awards (TES) (<http://theentrepreneurialschool.eu/>) to join two workshops.

Two meetings were in partnership with the EE-HUB (www.ee-hub.eu) project and one in connection with the Entrepreneurship Education Summit in Brussels 2017.





METHODOLOGY

This research report summarizes some of the results from the research including findings in the ICEE clusters that were relevant for the research.

- For a more detailed description of the results, the full report is available on www.icee-eu.eu.

The data collection in ICEE research came mainly through two sources:

- A quantitative study by surveys of students, teachers, parents and business people in Belgium (Flanders), Estonia, Finland, Italy and Latvia. 25 schools participated in the study. The net samples were 7000 students, 3500 parents, 1000 teachers and 400 business people. The data was collected over two school years. Results from the quantitative study were published in January 2018.
- A qualitative study where 150 people from ten participating schools were interviewed in addition to head teachers and representatives from ministries. The researchers used semi-structured interview guides for both individual interviews and focus groups. Results from the qualitative studies at five schools in 2016 were published in March 2017.

The research design in ICEE has advantages compared to previous impact studies on entrepreneurship education (EE) and mini-companies.

Some of these are the ability to compare mandatory CP-participants with non-participants, high CP activity to low CP activity, to control for competing explanations of impact, and large samples with good representativeness.

ICEE measures the impact using a pre-post-test design. To document the significance of CP, three groups of respondents are compared:

- students at test schools participating in CP and their teachers and parents;
- students at test schools not participating in the CP and their teachers and parents;
- students and their teachers and parents not participating in the CP in control schools not influenced by the project.

It was expected that there would be vast differences between students in the time spent on CP. CP-students spent an average of 160 hours on CP over approximately 25 weeks (the sum of time spent at school and after school), and this average was about the same in all countries in the study. 70% of the CP-students spent more than 100 hours working on the CP (high CP activity) and 30% of the students spent 99 hours or less (low CP activity). Thus, we decided to divide the test groups according to time. One would expect better learning outcomes for those with high CP activity, and we did find that this group was positively influenced by the programme in many dimensions. Those with low CP activity, on the other hand, had no positive significant findings.

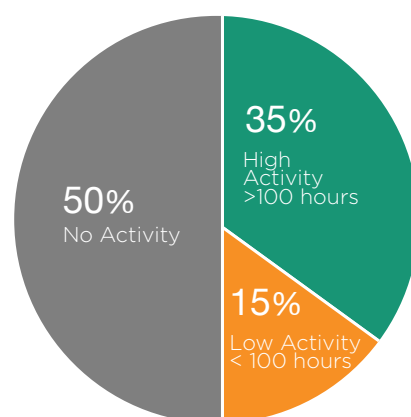
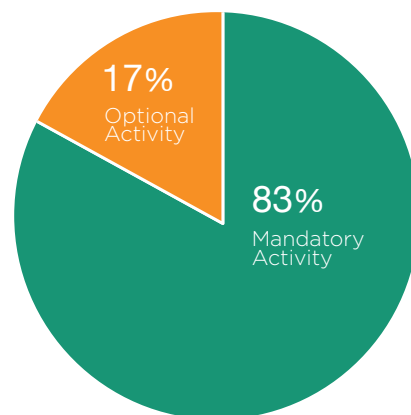
The data also allowed us to distinguish between students who take part in the CP as a mandatory activity (83% of CP-participants) and those who take part in it as an optional activity (17% of CP-participants). There were very few differences between these two groups as regards the influence of CP, and therefore it was unnecessary to divide the presentation of results. Still, analyses separating between the two groups have been conducted as tests of sensitivity of the results.

As regards students in the control group, we expected that there would be some differences between non-participants at test schools and non-participants at control schools. When analyzing the data, we found that there were only small differences between these two control groups on the learning outcomes. To simplify the analysis, we decided to merge the two control groups into one.

In all analyses of the significance of CP for students, three groups of respondents are compared:

- students with high CP activity (100 hours or more, 35% of the total sample);
- students with low CP activity (99 hours or less, 15% of the total sample); and students with no CP activity
- students with no CP activity (50% of the sample).

The analyses also checked for the impact of independent variables such as gender, immigrant background, parents' background and previous entrepreneurial experiences. The main results for these groups have been reported. Analyses of ICEE data has also been done at the country level, but to simplify the presentation, this report presents main findings for an aggregated sample. Results for the countries are presented in [five separate country reports](#).



SUMMARY OF THE KEY FINDINGS

1 Reaching 50% penetration has a substantial impact on the schools' organisation and also changed teachers' attitudes in some areas

In the project description, the main goal of the ICEE project was formulated like this: "To move towards the European goal that every young person should have a practical entrepreneurial experience before they leave school, the consortium will test what the scenario would look like if 50% of students between 15 and 20 years old had such an experience."

First of all, the project had a substantial impact on the schools. After ICEE, most teachers at the test schools (both mini-company teachers and non-mini-company teachers) agreed that their school "had a plan for EE", that "EE was an integral part of the school's ethos and culture", that "there was a leading team that sustained the promotion of EE", that "the school collaborated with local businesses and/or organisations in the delivery of EE", and that "content and methods related to EE were a priority". For all these dimensions, there was a significant change from the pre-results to the post-results for the test group. Teachers at the control schools scored much lower.

"The teachers have developed or changed attitude towards entrepreneurship during this year. The teachers were afraid, they didn't see the use of it, and they said they prepared them for university. But now they are among the most positive ones."

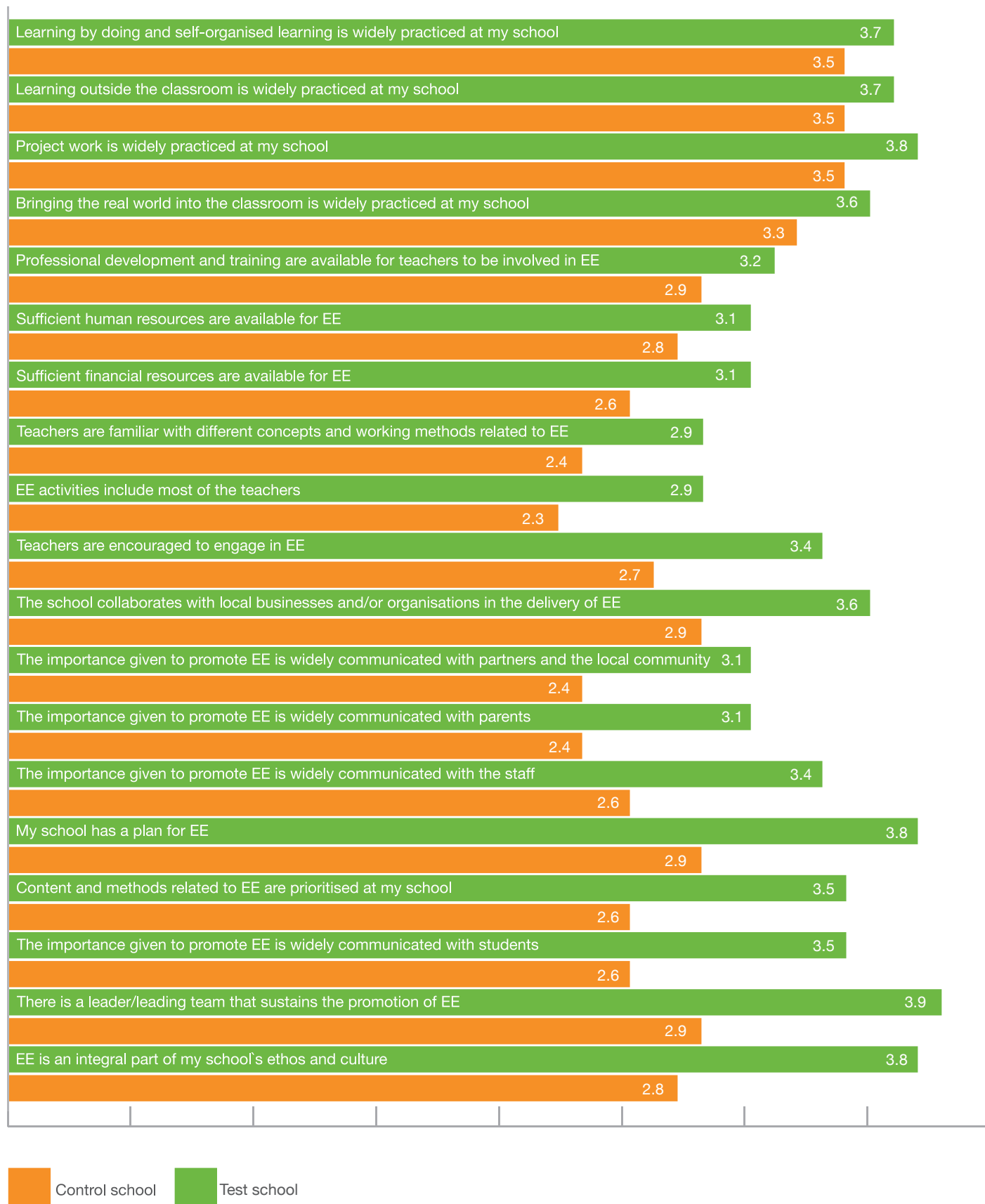
Headmaster in the ICEE project

"There was a lot of resistance among the teachers when we launched our participation in the ICEE project and that we would have to increase the number of students in the CP from very few to 50%. At the end of the project, I expected all teachers to go back to "normal". But when I asked them, they all wanted to continue offering the program to the students."

Headmaster in the ICEE project



Please indicate the extent to which you agree (5) or disagree (1) with statements about your school and its focus on entrepreneurship education in the previous school year. Mean post-test results for teachers (n=803), divided by type of school



Secondly, through their role as a CP-teacher, teachers became more positive to EE in some areas. More often than the non-CP-teachers, the CP-teachers agree that EE should be a mandatory part of teacher education, that advanced training in EE should be offered to teachers who have completed their education, that EE is also relevant to primary school, that EE should be embedded as a subject in compulsory education, and that EE should be based on real experience. In other areas, there are no differences of opinion between CP-teachers and the control group, such as: relevance and priority in secondary school; use of EE as an explicit goal in curricula; and integration into existing subjects and interdisciplinary projects. Both teachers in the field trial and teachers in the control group have the same opinion of the usefulness of EE in ten different subjects before and after the field trial.

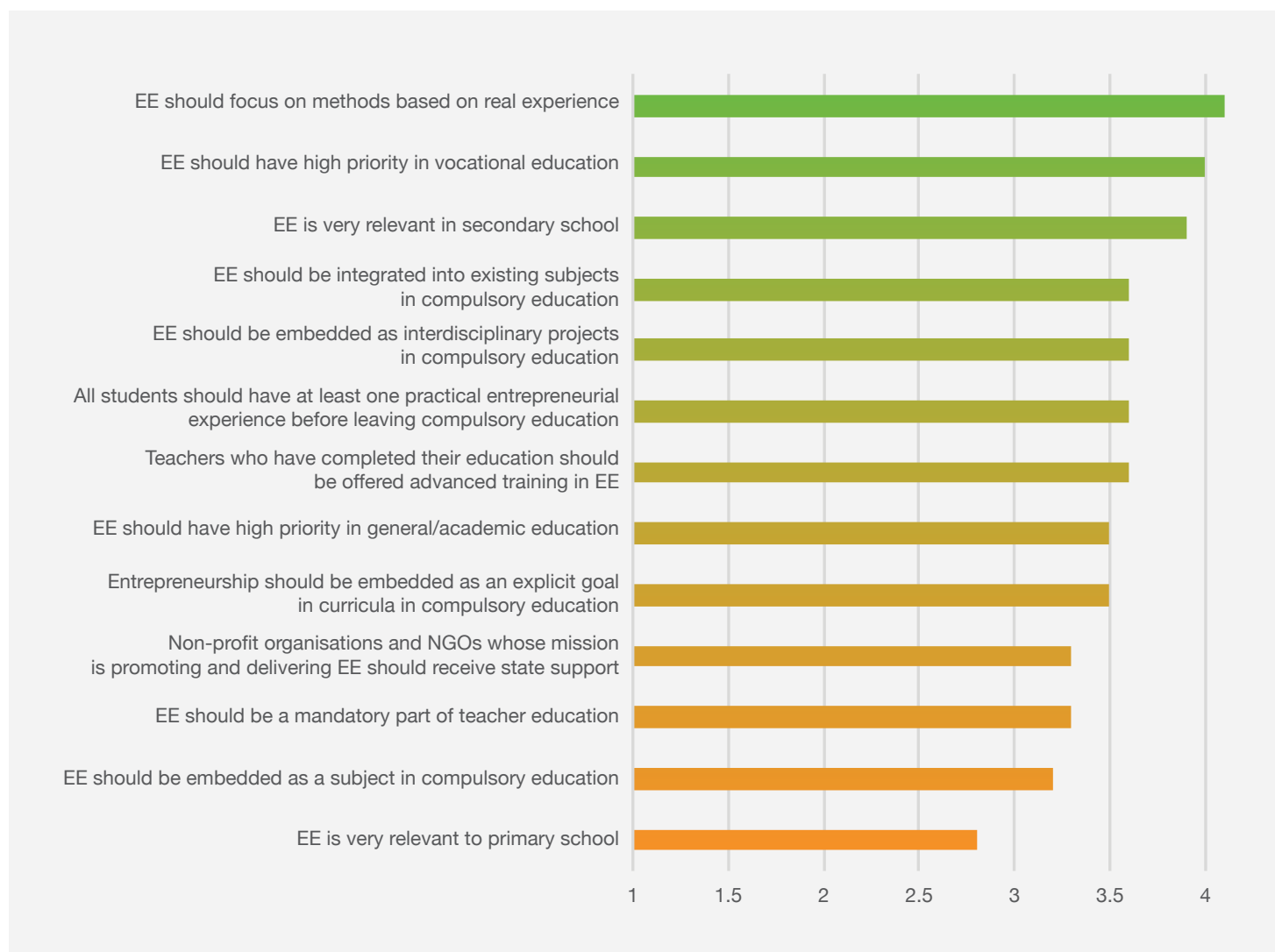
In the qualitative interviews teachers also highlighted important aspects of the experiences with the CP-method.

Equal footing with the students: Several teachers expressed that they find it meaningful to be on an equal footing with

their students in the cooperative nature of mini-companies. They enjoy learning together with and from their students. In addition, teachers describe that the students can show their individual strengths through CP when the teacher acknowledges and sees the individual (see more in finding 6).

Reflection-on and in-action: Organized knowledge-sharing can enhance teachers' awareness about why students succeed or are challenged by CP work. The teachers recount that they find it useful to share positive and challenging practical experiences with other teachers, and to have time to reflect. In some of the countries the teachers worked in teams and felt that the mutual support they got from teamwork was a big asset.

School administration: It is important that teachers experience the school administration as supportive, because teachers have differing backgrounds and motivations for working with CP. Several teachers describe how they experience increased motivation and mastery by having appropriate areas of responsibility when working with CP.





This ICEE research has a multinational and high-quality research design, and conclusions on CP and its impact on various learning outcomes are based on analyses where we control for relevant competing explanations. Moreover, we use a conservative criterion for statistical significance (0.01-level), and some of the positive effects found for students in this study, have also been reported in previous studies of CP with test and control groups. Thus, we are reasonably certain when we conclude that variables are related. In addition to tests of statistical significance, “effect size” is an important tool in reporting and interpreting effectiveness.

Having established that ‘CP works’ (there is an effect – measured with tests of statistical significance), we can ask ‘how well CP works’ (what is the effect – measured with Cohen’s *d*). Cohen’s *d* indicates the standardized difference between means in two groups, and it is reported in all tables as a supplement to tests for statistical significance. The study compares the high CP activity group with the non-CP

group, and the calculation of Cohen’s *d* varies between 0.0 and 0.3¹. These scores were expected since we investigate many variables in areas other than the core purpose. Moreover, ICEE is a large-scale and complex educational intervention, and the combination with a research design carefully controlling for other variables and pre-test results, makes it more difficult to get high scores on effect sizes.



1. It seems to be a feature of educational interventions that very few of them have effects that would be described in Cohen’s classification as anything other than ‘small’. This appears particularly so for effects on student achievement. In education, if it could be shown that making a small and inexpensive change would raise academic achievement by an effect size of even as little as 0.1, then this could be a very significant improvement, particularly if the improvement applied uniformly to all students, and even more so if the effect were cumulative over time.

2

Quantity is essential if practical entrepreneurship projects like mini-companies are to make an impact for the individual and society

70% of the CP-students spent more than 100 hours working on the CP (high CP activity) and 30% of the students spent 99 hours or less (low CP activity). Students using more than 100 hours in the CP seem to be positively influenced by this participation, while students using fewer than 100 hours do not seem to be influenced by the participation.

The main aim of CP is to enable students to form their own real enterprise and discover first-hand how a company functions, but students with high CP activity also seem to be positively influenced in other areas. The analyses show that those with high CP activity had significantly higher scores compared to students with no CP or low CP activity on several dimensions (e.g. perceived feasibility for self-employment; project management; sense of initiative and entrepreneurship; and school performance). These results were found both among the mandatory and the optional group. At the same time, those with low CP activity were not influenced by the participation, and negatively influenced on a few dimensions (e.g. school motivation).

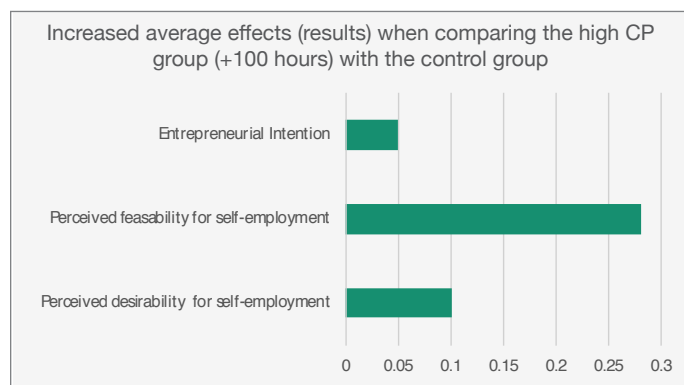
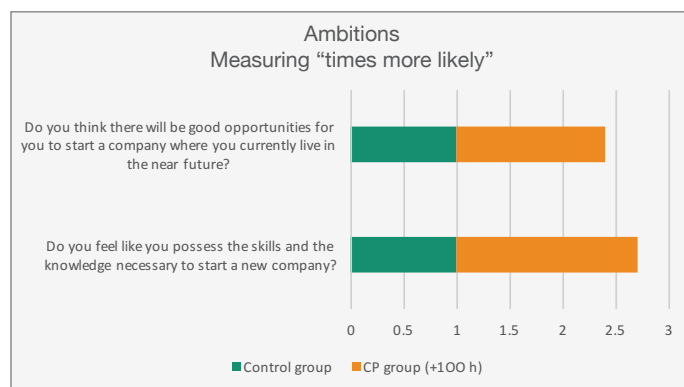
High-CP participation in school increases entrepreneurial ambitions (desirability, feasibility). In particular, high CP activity seem to have a positive influence on perceived feasibility for self-employment (Cohen's $d = 0.28$).

The differences between the three groups were insignificant as regards entrepreneurial intention. When controlling for all relevant variables, the expected influence on entrepreneurial intentions failed to appear.

In addition to measurements based on multiple items (desirability, feasibility, intention), we also measured two single item questions on self-employment related to business skills and career preferences. Compared to those with no CP, high CP-participants are 1.7 times more likely to perceive that they have knowledge and skills related to how to start a business and 1.4 times more likely to perceive that they preferred self-employment².

Moreover, it seems that the perceived effect of CP on skills and knowledge and preference for self-employment is somewhat stronger among young women than men.

In the qualitative interviews both the teachers and the students pointed out that the students gained considerable knowledge about starting and running a company, not only in theory, but in practice. This is concrete knowledge about the different phases of a business, from having an idea to producing, marketing and selling it.



"Some are not interested in using their brains. They prefer to listen, not to work themselves. This is a big problem. Now it is mandatory so we have more of these pupils now. Some say that ordinary teaching is better. They don't want to do the job themselves. Earlier, when it was not mandatory, students who didn't manage the company programme could quit; now they cannot."

Student about mandatory vs elective participation

2. Swedish study 2015

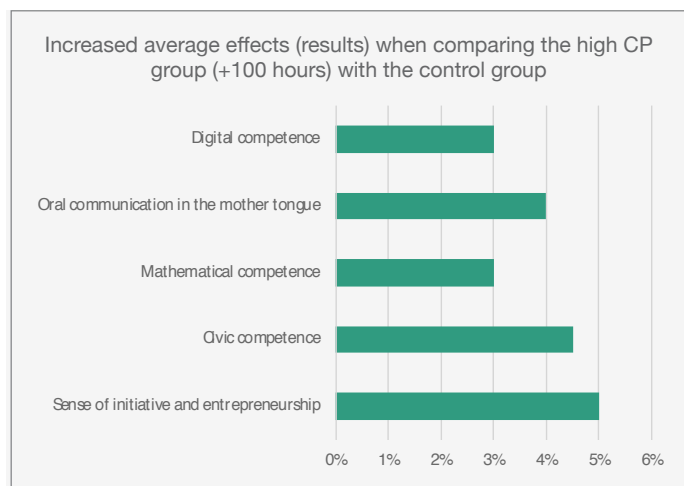
A Swedish study from 2015 (IFN Working Paper No. 1063, 2015 The Impact of Entrepreneurship Education in High School on Long-Term Entrepreneurial Performance) demonstrates the long-term effects of entrepreneurship education and training programs during high school on subsequent entrepreneurial performance. Studying the total population of 211,754 Swedish high school students between 1994 and 1996, among which 9,731 participated in the Junior Achievement Company Program (JA CP). The analysis suggests that JA CP participation has a positive effect on the long-term probability of starting a firm, which is as high as 30% Norwegian study 2011

High CP-participation seems to stimulate transversal competences with particular positive influence on project management (Cohen's $d = 0.24$). For other transversal competences (self-efficacy, creativity and teamwork) although there is a significant positive impact the effect seems to be smaller. On the one hand, entrepreneurial competencies can be understood as a specific group of competencies relevant to the exercise of successful entrepreneurship but they can also be understood as transversal and applied to all spheres of life. Within the EntreComp framework, competencies such as project management, creativity, teamwork and self-efficacy are seen as valuable to entrepreneurship (and other spheres in life).

In the qualitative interviews the students talked about the group process, responsibility and management. The students participating in the CP found that they were taking part in a group process in which they learnt to work in a democratic way, with all group members exerting influence. Consequently, they learnt valuable communication skills, conflict solving and decision-making, and also that they must work hard for their company to succeed. Moreover, the students were content with working independently and taking responsibility, and they claimed they learnt more that way. The teachers, volunteers and parents had the same opinion. The students described the CP as more 'real' than any other projects they had been a part of, due to the programme's length and time requirements, which enhanced the authenticity of the experience and provided opportunities for trial and error. They learnt to take responsibility both for the student company and for their own learning process.



High CP-activity has a positive effect in other areas than the core purpose, but these (unintended) effects are small. Tests of significance show that high CP activity seem to have positive influence on some key competences (sense of initiative and entrepreneurship, civic competence, mathematical competence, oral communication in the mother tongue and digital competence) but the influence of CP is limited. As regards development of other key competencies, they are not the main aim of CP, so the limited impact was expected.



In the qualitative interviews the students, teachers and parents pointed out that students had learnt generic skills and that CP stimulated key competences. Teachers, parents and students all mentioned such skills as how to communicate and resolve conflicts within a group, how to present a product (native language and English), and how to handle company finances. For some students, their understanding of how useful other subjects were increased, and they started to pay more attention to those other subjects. Moreover, the students mentioned new attitudes towards themselves and the other students, having to do with responsibility, courage, patience, pro-activity and independence. The teachers mentioned personal gains such as improved confidence and competence as some of the most valuable CP learning outcomes. The parents also witnessed these changes.

“Passion! You really have to live what you are doing, to put in the time necessary. There are many opportunities, but I learned that we have to reflect on what is the best at the moment.”

CP Student talking about the skills he acquired

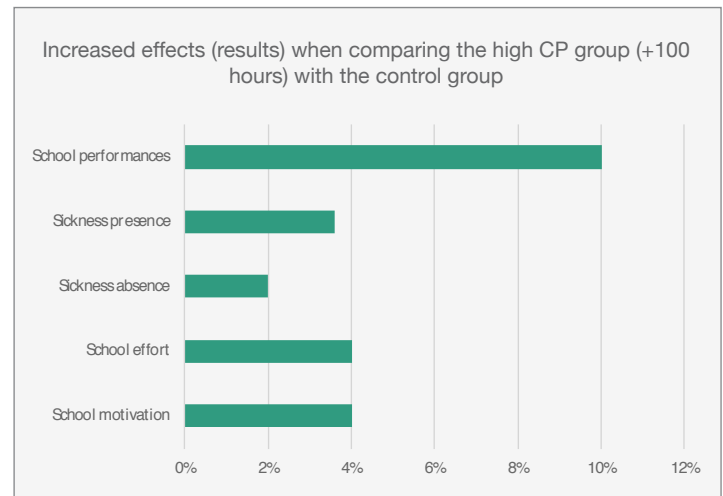
A study done by Østlandsforskning 2011 investigated long term the effect of the JA company programme among former students in the age group 24 to 25 and compared them with a matched control group. They found that 12% of the former CP students had established their own company compared with 8% in the control group. They also found that 33% of the former CP students had a leadership position compared to 25% in the control group.
(ØF- notat nr.: 17/2011 Ungdomsbedrift og entreprenørskap)

3

High Company Programme activity has no negative impact and improves school performance

One often-heard concern towards introducing EE in school is that it may “steal” time from other important work at school. Neither in the qualitative research, nor in the quantitative research, did we find any indications or findings to support this concern for the high CP activity group.

In fact, students spending more than 100 hours on the CP seem to improve their performance in other subjects³, they become more knowledgeable about team work, in addition to becoming more entrepreneurial in their studies. School performance was measured by the Grade Point Average (GPA) for one school year. The GPA of students with high CP activity was significantly higher than the GPA of non-participants. The influence is smaller as regards school motivation, effort, absence and presence.



One of the highest reported effects in the ICEE research is increased school performance, maybe one of the most interesting findings seen from a teachers' perspective. From a pedagogical point of view, the reason for this finding is probably connected to a better learning environment for the students and that they see their education as meaningful.

Students and teachers noticed that the relationship between them shifts in a positive way. Students understand the usefulness of other subjects they were being taught. Students report on increased motivation and effort. In interviews, they said they developed new attitudes towards themselves and the other students, having to do with responsibility, courage, patience, pro-activity and independence.

The teachers mentioned personal gains such as improved confidence and competence as some of the most valuable CP learning outcomes. The parents also witnessed these changes.

Effective entrepreneurship teaching engages the students in a process where they can use their own experience, knowledge and interests as a starting point. These are all elements which create ownership of their own projects. They become more responsible for their own learning process and they see it as meaningful. Or as one of the students said in an interview: “If everything is told to you, it is not learning. You have to figure out something on your own”.



“The amount of dropouts has declined since we have taken the team-learning and EE. I believe the learning by doing is important.”

Teacher

“In our class there are students that are not so good but are good in the CP. They have been really integrated into the CP. Through the project and my communication, they changed their attitude towards the project and the school in general. Some students lack skills so they have difficulties, of course, but I am talking about school attitude. When they meet me, they tell me what has happened, what they did. They want to share and that is positive.”

Teacher

3. GPA is calculated by adding the grade points a student earned and dividing the sum by the total number of subjects taken. GPA was measured both before the CP started and afterwards.



4 Students provide positive feedback on the Company Programme-method and the learning outcomes

Focus group interviews with more than a hundred students, teachers and parents provided an opportunity to explore the company programme and learning outcomes in-depth.

- First, students appreciated the project time span (one academic year) and the complex work. The students underlined that it takes passion, hard work and long hours to carry out their initial idea, and their level of engagement is high.
- Second, the autonomy of decision-making developed their teamwork skills, and the fact that the project involved so much trial and error made the experience more real. Through the mini-company students have responsibility not only to themselves and the teacher, but also to customers, business people and their fellow students. It is also seen as positive by some that the assessment is not necessarily through grades, but also through competitions, customers, self-assessment and money.
- Third, teachers, students and parents in all countries mention a wide range of learning outcomes, such as knowledge (how to start and run a company); generic skills (creativity, conflict solving and presentations), and attitudes (school motivation, responsibility, self-efficacy and self-confidence). Both students and teachers mention that a by-product of this process, was more students coming to understand the usefulness of other subjects they were being taught.

“First of all, the company programme has been important for those students who do not show much interest in schoolwork in general. By working together in a mini-company, they have been integrated and given a role, and consequently experienced the meaning of teamwork and practical work. The result is that students recognise themselves as part of the project, and therefore have a good time.”

Teacher

“We are running the process ourselves. Teachers trust us and in the end teachers want results, they don’t want to know how – they want the results. Of course there is supervision from teachers, but we are free to manage and arrange everything. At the very beginning they gave us some guidelines, how to start and arrange the meetings and this sort of thing. After some time, we asked for help when needed, but we did it by ourselves.”

Student

“Company programme is considered a really wide project with lots of subjects involved. In this way all the students have a chance to improve, because if I miss something I have the chance to fill the gap. The funny thing in my opinion is the fact that I choose a project. It is not like this in other projects. Company programme is a long time, you have the opportunity to learn and reflect upon the learning.”

Student

5

Most teachers find mini-companies very relevant and the relationship between teacher and student seems to shift in positive ways

The majority of teachers underline the necessity to focus on methods based on real experience, such as mini-companies. Enthusiastic and competent teachers play a crucial role in the implementation and upscaling of EE.

A challenge for upscaling of EE is that most non-CP teachers are not familiar enough with the different concepts and working methods related to EE. Teachers require more training to feel competent teaching entrepreneurship, both in the pedagogical process and in the academic content of EE/CP. The majority of CP teachers observed that many students showed noticeable improvement in terms of handling the many project challenges. Teamwork and cooperation skills were among the most important assets, in addition to knowledge on how to start and run a company, and also subject-specific learning. The overwhelming majority of CP teachers report that the CP is an effective teaching tool, that they are satisfied with the CP as an educational method and that they would continue using the method and recommend to their colleagues to do the same.

“Students like to be in the driver’s seat of their own learning process. At the same time, they felt confident that their teacher would help if they needed guidance.”

Teacher

Teachers in group interviews also reported that they found themselves on more equal terms with the students through the work with CP, with relationships that are more informal and cooperative in nature. As a result of gaining a closer relationship with the students and following their learning processes up close, some of the teachers related to the students in a more respectful way. Some teachers also highlighted the pedagogical advantages of this way of learning, saying they felt they gained a greater understanding of their students and it changed in the quality of their relationship. Based on observations and meetings with the teachers in the project, the teacher retention rate seems to be high.

In interviews, some teachers pointed out that more girls participated in EE and became the CEO of their mini company. Still, teachers also pointed out the persistence of traditional gender roles, both in the choice of what the companies produced or sold and the way companies were presented.

“Many schools see the mini-company as something on top, something extra. We try to help them to see the topics in the mini-company that can be integrated in the topics – languages, mathematics, etc. Some teachers see this, but it is difficult to integrate. We try to talk to teachers to think about ways to integrate and they see that they can do it this way.”

JA representative

6

Most business people and entrepreneurs believe in the importance of entrepreneurship education, and the business sector wants to be more involved

Currently, institutional cooperation between the formal education system and the labour market is weak, and this needs to change. The majority of business people pointed out that schools do too little to ensure access to business people and entrepreneurs who can provide training and support in EE. At the same time, more than half of the teachers argued that business people and entrepreneurs are seldom available as volunteers for training and support. Both teachers and business people recognized that business people and entrepreneurs have adequate competence in EE, while most teachers are less competent.

Business people and entrepreneurs have a lot to offer schools as regards EE, especially if they get some pedagogical advice on how to approach the students. The overwhelming majority of CP-mentors report that the CP is an effective teaching tool, that they are satisfied with the CP as an educational method and that they would do this again and recommend to their colleagues to do the same.



7 Most parents have a positive attitude to entrepreneurship education and practical entrepreneurship projects such as mini-companies

The parents of students participating in CP were satisfied with the practical and non-theoretical way of learning that CP represented, but they also reported that they wanted more information about the learning process and the assessment.

The parents' generation is likely less familiar with the CP's learning-by-doing approach, and they need more information about these principles of teaching. We learned that parents are not very involved in EE. They could play a much larger role, however, and could become positive drivers for EE in schools.

"We talk to our parents about the mini-company and they are all positive. The parents think that we are learning better by learning-by-doing. It is good to practice before the real world, they say!"

Student



8 Government priority, curriculum, teacher training and school/business -cooperation are key areas for increasing uptake of entrepreneurship education

Teachers, parents and business people reported that more support from the national government and from teacher education (universities/university colleges) is needed for EE.

Moreover, there must be funding to support EE, and EE must be better integrated in the curriculum/subjects. The most important driver is, perhaps, that the majority of all relevant groups (teachers, students, parents, and business people) believes in the importance of EE.

TOPIC	DRIVER	HINDRANCE
Government priority	Some governments (national, local) have made EE a priority, and many school leaders prioritize EE.	Some governments (national, local) have neither made EE a priority, nor provided any funding.
Curriculum	EE is embedded in school documents/curricula in many countries.	EE is not well-integrated in the curriculum/subjects, so many teachers find it hard to make enough time for EE.
Teacher training	EE teaching methods are considered effective and academically credible; there is an increasing focus on providing adequate teacher training	Lack of good-quality teacher training, means most teachers have inadequate competence in EE.
Cooperation between school and business	Business people/entrepreneurs want to bring real-world experience and expertise into the classroom; they can provide competences for EE that many teachers do not have.	Institutional cooperation between the education system and the labour market is weak. Businesses and schools struggle to collaborate effectively.

The table illustrates the continuum between drivers and hindrances.

RECOMMENDATIONS



The knowledge from the field trials can be used for further implementation of entrepreneurship education in schools; the analyses and models may facilitate the implementation process for those who are playing operational roles (School Directors, Teachers, NGO Partners) and those who are playing supporting roles (Parents, Private Sector Partners, members of the local community, media). Finally, and more broadly, we are concerned with European policy-makers, stakeholders and the public at large.

From the quantitative research:

- Schools must allow for «enough» time to work on the Company Programme, and students themselves must make an extra effort after school.
- A deep dive is much better than a light touch. 100 hours or more of training in the Company Programme gives better results.

From the qualitative research:

- The Ministries of Education should continue their work on educational reforms adopting a more competence-oriented approach to learning.
- There is also a need for the Ministries to continue establishing a national strategy of entrepreneurship education and integrate it into the school curriculum.
- There should be more focus on the important role of head teachers as door openers in implementing entrepreneurship education in their schools.
- The teachers need to be given proper access to entrepreneurship education and training in the use of Company Programme or similar programmes. It is also necessary that the teachers receive enough time allotted for teaching and that they are encouraged to work together in teams.
- It is important to recognize students as ambassadors in relation to the head teacher, the teaching staff and other students, and to give students sufficient time to work on their companies and adequate support from their teacher, mentor or both.
- Strong links should be established between regional business networks, mentors, schools and JA organisations or similar organisations, to further entrepreneurship education.
- Parents should be informed about entrepreneurship education, the Company Programme, the learning process and assessment methods, to ensure their involvement.
- We also recommend that the ICEE project continue to delve into the above-mentioned topics using both quantitative and qualitative in-depth studies.

Recommendations from 55 teachers from 15 countries

In the final meeting of ICEE in Tallinn, November 2017, 55 teachers and head-teachers from 15 countries met to share knowledge and practices, and they concluded on these recommendations on how schools can best move into EE.

Do not go alone as a teacher. Teachers implementing entrepreneurship education programmes and or using entrepreneurial methods in their practices should not be left alone. They should always have someone to discuss with, to exchange opinions with and be able to seek advice. The school should establish a network not only within the school but also outside the school, with other teachers or schools, at regional, national and international level.

Every teacher at a school should be somehow involved or informed about EE. Inform all teachers about the initiative. Teachers from different subjects should be informed, learn about the challenges and benefits of entrepreneurship education and gain an understanding of the opportunities in their subject. It is important as well to recognise the teachers already working on it.

Experienced teachers can lead the teacher training. The lack of skills of teachers is still hindering the uptake of entrepreneurship education. The training should use “learning-by-doing methodology” and, when in training, teachers should try out the programme and/or activities themselves – to understand what it means for the students to be involved in entrepreneurship education and for teachers to challenge their own comfort zone. Focus should be on methodology. Analysing the mistakes done when teaching entrepreneurship education is key to understand how to improve it. Both in the classroom and in trainings it is important for the motivation to allow to test, try, fail and learn. As long as the school has experienced teachers, these teachers should train newcomers and other teachers in the school wanting to move into entrepreneurship.

Engage the local community, start with the parents. Communicate with parents as they need to be informed. Bring them on board as mentors for the students, for instance. The same with the local community, either if it is the school reaching out (trade fairs, events, etc.) or using the local community as a resource of knowledge and support.

Improve the school environment and generate awareness. When moving into entrepreneurship, the school should have some flexibility in the school time-schedule and dedicate a couple of hours for the teachers to work together. As the school expands the activities, entrepreneurship should be more integrated into the activities and the school should have a progressive plan. Sometimes changing the structure of the school rooms as well as having more flexible areas (open space) where to do the work would help. Providing good role models and alumni examples can motivate students as well as teachers. It is also important to communicate the impact to all stakeholders.

Leadership involvement. The support from the head teacher, who represents the leadership at the school, is a critical success factor. He/she must be involved, informed and updated about progress, activities and achievements.



